

## 3622-MCG Control-02-0110

### Using the Application Program

Product family: Communication  
Product type: Interface  
Manufacturer: IPAS GmbH  
Name: ComBridge MultiControl Gateway MCG  
Order Nr.: 3622-141-01

### Functional Description

The ComBridge MultiControl Gateway application features a real time clock and function modules for time and event switch programs, for event trigger conditions and for logic functions. The following functions and quantities are available simultaneously:

- Time Switch Programs
  - 100 Time Switch Commands
- Calendar programme + periods
  - 50 Time Switch Commands
- Event Trigger
  - 30 Trigger Conditions
- Event Switch Programs (Scenes)
  - 200 Commands
- Logic Functions
  - 30 Logic Gates
- Internal Memory Objects
  - 30 Memory Objects
- Real Time Clock
- Info-Object Mode
  - EIBnet/IP

The device allows the definition of up to 80 EIB/KNX communication objects. For each object, it is possible to freely select its data type:

- 1 bit (EIS 1)
- 1 Byte unsigned (EIS 14)
- 1 Byte signed (EIS 14)
- 2 Byte unsigned (EIS 10)
- 2 Byte signed (EIS 10)
- 2 Byte float (EIS 5)
- 4 Byte unsigned (EIS 11)
- 4 Byte signed (EIS 11)
- 4 Byte float (EIS 9)

All defined objects can be used by all available modules. Therefore up to 80 objects can be used for scheduled switch programs, as entry signal for logic gates or event triggers or as output of functions and event switch programs (scenes). Memory Objects can be used to store the result of logic gates or event triggers, and as input to logic functions.

### Quick description of the function modules

#### Time Switch Programs:

A time switch command applies to a single EIB/KNX object. Output values can be binary and byte values, depending on the data type of the EIB object. For each time switch command it is necessary to define the time, the output value, on which weekdays it is active, and whether the switch command is to be executed after a failure of the power supply. Alternatively, time switch commands can be defined according to the astronomic calendar.

#### Event Switch Programs:

An event switch program is an instruction list of single switch commands that are to be executed in one sequence. In that sense, a scene can also be defined as an event switch program. By contrast to a scene where everything happens simultaneously, it is possible to insert waiting time intervals between single switch commands of the instruction list.

#### Event Triggers:

Event triggers allow to define the conditions leading to the execution of an event switch program.

#### Logic Gates:

This module allows the definition of logic functions. Each logic gate has up to 4 input signals and can be selected to perform an AND or an OR function. Each input signal can be inverted. Input signals can be EIB/KNX objects or memory objects. The output of a logic gate can be stored in a memory object or it can switch an EIB/KNX object or an event switch program (scene).

For each gate, it is possible to link different event programs to the TRUE and to the FALSE condition at the same time. The memory object and the EIB/KNX object, if connected, are set to the result of the logic function.

The sending condition can be set for each logic gate individually:

- Send the calculated output value each time an input signal is detected, regardless whether it is the same as previously or not.
- Send the calculated output value only when it has changed.

It is possible to use the memory objects as input signal for further logic gates.

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### Real-Time Clock:

The device features a battery-backed real time clock.

The current time is shown on the display of the device and can be set via the programming buttons on the device front (ref. mounting and installation instructions). The current time can be sent to the EIB/KNX bus with a definable interval. The real time clock can be synchronized using a UDP time server on the local area network or on the internet.

The ComBridge MultiControl Gateway MCG checks its own battery every 24h. Below the warning level, the display will show a message and a corresponding status object is set and a telegram is sent on the EIB/KNX Bus (ref. status objects).

### Info-Object Mode:

The ComBridge MCG acts as a bidirectional link between the EIB/KNX and the IP network. All EIB group addresses can be transmitted as objects to the ComBridge Studio Software for further applications. Please refer to the ComBridge Studio description.

The ComBridge MCG allows the connection of the IP protocol to readily available PCs. Within the IP network, the MCG is identified through its IP Address: this IP Address can be programmed with ETS or can be assigned automatically using DHCP.

### Using the application in conjunction with the ComBridge Studio Software

In such cases, the MCG is managed centrally by the ComBridge Studio Core Service. This service allows to exchange information between the EIB/KNX installation and one of the following application services:

- OPC Services
- WEB-Visualisation
- Data Base Services
- e-Mail Services

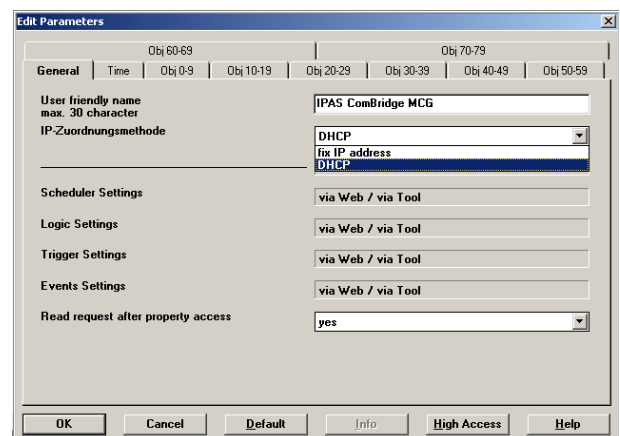
Further information can be found in the ComBridge Studio documentation.

### Programming the devices

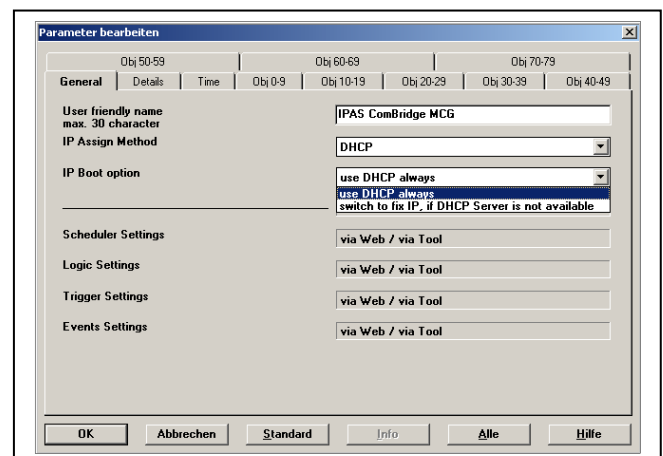
The device requires ETS programming to set basic parameters and communication objects. The application itself is performed using a web based user interface.

### Overview of the ETS programming

The ETS programming covers all aspects of fundamental settings of the device, starting with its IP Address. The default setting is to obtain an IP address automatically from a DHCP server. Alternatively it is possible to set a fixed IP and subnet mask plus a standard gateway / router allowing to reach participants in other networks or in the internet.

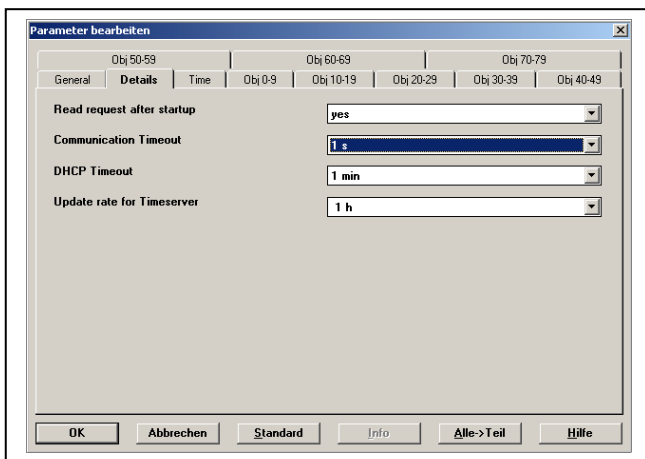


It is possible to select DHCP and have the device switch to a fixed IP, if no DHCP server could be detected at boot time.

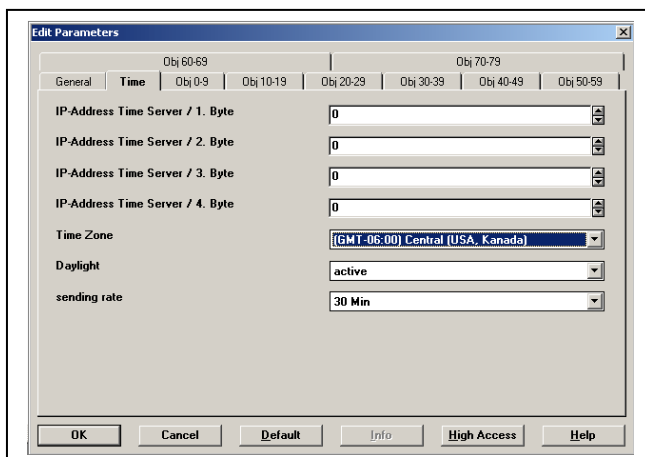


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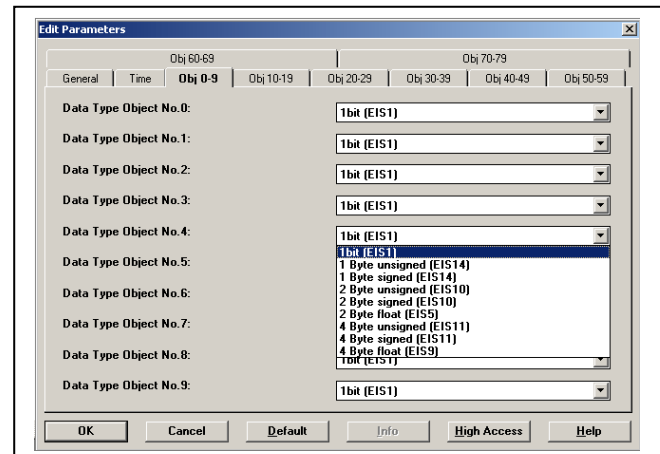
The duration of the timeout before the device is to switch from DHCP to a fixed IP can be set under *Detail*. The ETS application must be switched to “full access” in order to get to the corresponding screen.



If the real time clock is to be synchronised with a UDP time server, it is necessary to enter the time server's IP address in the following screen. It is also necessary to enter the time zone of the MCG location, in order to display the correct local time. The screen also allows to set the time interval with which the MCG will send date and time telegrams to the EIB/KNX Bus.



Before assigning group addresses it is necessary to define the data types for each communication object. For each of the 80 objects one of the following data types can be selected:



Once this definition has been performed, ETS will show the corresponding communication object, which is then ready for group address assignment.

### Communication objects

The following communication objects can be selected:

Possible data type for object 1				
Definition of function and type is performed using ETS				
Obj	Function	Object Name	Typ	Flags
0	EIS 1	Object 1	1 Bit	CRWTU
Data type: 1 bit				
0	EIS 14	Object 1	1 Byte	CRWTU
Data type: 1 Byte unsigned				
0	EIS 14	Object 1	1 Byte	CRWTU
Data type: 1 Byte signed				
0	EIS 10	Object 1	2 Byte	CRWTU
Data type: 2 Byte unsigned				
0	EIS 10	Object 1	2 Byte	CRWTU
Data type: 2 Byte signed				
0	EIS 5	Object 1	2 Byte	CRWTU
Data type: 2 Byte float				
0	EIS 11	Object 1	4 Byte	CRWTU

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Data type: 4 Byte unsigned				
0	EIS 11	Object 1	4 Byte	CRWTU
Data type: 4 Byte signed				
0	EIS 9	Object 1	4 Byte	CRWTU
Data type: 4 Byte float				

<b>Possible data type for object 2</b>				
Definition of function and type is performed using ETS				
Obj	Function	Object Name	Typ	Flags
1	EIS 1	Object 2	1 Bit	CRWTU
Data type: 1 bit				
1	EIS 14	Object 2	1 Byte	CRWTU
Data type: 1 Byte unsigned				
1	EIS 14	Object 2	1 Byte	CRWTU
Data type: 1 Byte signed				
1	EIS 10	Object 2	2 Byte	CRWTU
Data type: 2 Byte unsigned				
1	EIS 10	Object 2	2 Byte	CRWTU
Data type: 2 Byte signed				
1	EIS 5	Object 2	2 Byte	CRWTU
Data type: 2 Byte float				
1	EIS 11	Object 2	4 Byte	CRWTU
Data type: 4 Byte unsigned				
1	EIS 11	Object 2	4 Byte	CRWTU
Data type: 4 Byte signed				
1	EIS 9	Object 2	4 Byte	CRWTU
Data type: 4 Byte float				

<b>Possible data type for object 80</b>				
Definition of function and type is performed using ETS				
Obj	Function	Object Name	Typ	Flags
79	EIS 1	Object 2	1 Bit	CRWTU
Data type: 1 bit				
79	EIS 14	Object 2	1 Byte	CRWTU
Data type: 1 Byte unsigned				
79	EIS 14	Object 2	1 Byte	CRWTU
Data type: 1 Byte signed				
79	EIS 10	Object 2	2 Byte	CRWTU
Data type: 2 Byte unsigned				
79	EIS 10	Object 2	2 Byte	CRWTU
Data type: 2 Byte signed				
79	EIS 5	Object 2	2 Byte	CRWTU
Data type: 2 Byte float				
79	EIS 11	Object 2	4 Byte	CRWTU
Data type: 4 Byte unsigned				
79	EIS 11	Object 2	4 Byte	CRWTU
Data type: 4 Byte signed				
79	EIS 9	Object 2	4 Byte	CRWTU
Data type: 4 Byte float				

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Date/ Time				
Obj	Function	Object Name	Type	Flags
80	Date	Date	3 Byte	CWT
The group address of this object communicates the current date.				
81	Time	Time	3 Byte	CWT
The group address of this object communicates the current time to the bus.				

Status																				
Obj	Function	Object Name	Type	Flags																
82	Status	Status	2 Byte	CWT																
The group address of this object communicates the device status. The status is coded according to a 16 bit bitmask:																				
					16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
The bits have the following meaning:																				
Bit 1	0	Application not started																		
	1	Application started																		
Bit 2	0	Programming mode not active																		
	1	Programming mode active																		
Bit 3	0	Battery Status OK																		
	1	Battery Status NOT OK																		
Bit 4	0	Device Management not active Download via Web Configurator active																		
	1	Device Management active																		
Bit 5	0	Postprocessing not active																		
	1	Postprocessing schedules active																		
Bit 6	0	Not used																		
	1	Not used																		
Bit 7	0	Not used																		
	1	Not used																		
Bit 8	Displaying current period																			
-	15																			

### Parameter

The application program contains the following parameters:

#### General Page

Parameter	Einstellungen
<i>General Parameter</i>	
Device Name	<b>IPAS ComBridge MCG</b>
This parameter determines the device name which will identify this MCG when queried or addressed on the IP side by the visualisation software.	
IP Address assignment	Fixed IP Address <b>DHCP</b>
It is possible to assign a fixed IP address or to have an automatic IP assigned by a DHCP server	
IP-Boot Option	<b>Use DHCP always</b> Use fixed IP if DHCP server is not available
This parameter is only visible if DHCP mode has previously been selected. It allows to determine, whether the MCG should revert to a fixed IP after a given timeout if no DHCP server responds. The timeout can be set under the <i>Detail-Tab</i> that is visible in <i>high access</i> .	
IP-Adresse / 1. Byte	<b>0</b>
IP-Adresse / 2. Byte	<b>0</b>
IP-Adresse / 3. Byte	<b>0</b>
IP-Adresse / 4. Byte	<b>0</b>
This set of parameters allow to enter the fixed IP Address for the ComBridge MCG. If DHCP-Mode was selected, this address will be permanently overwritten with the IP Address obtained from the DHCP server. The IP Address 0.0.0.0 is invalid and can only be used when a DHCP server is being used and available.	
Subnet Mask / 1. Byte	<b>255</b>
Subnet Mask / 2. Byte	<b>255</b>
Subnet Mask / 3. Byte	<b>255</b>
Subnet Mask / 4. Byte	<b>255</b>
The standard subnet mask of the ComBridge MCG is set here. If the DHCP mode was selected previously, the subnet mask will be permanently overwritten by the DHCP server. If the MCG is configured to have a fixed IP, the correct subnet mask must be filled in for the device to work correctly.	

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IP Standard Gateway / 1. Byte	<b>0</b>
IP Standard Gateway / 2. Byte	<b>0</b>
IP Standard Gateway / 3. Byte	<b>0</b>
IP Standard Gateway / 4. Byte	<b>0</b>
<p>The standard gateway (or default router) is required if the MCG needs to reach PCs outside of the local network. If the DHCP mode was previously selected, the standard gateway IP address will be overwritten by the DHCP server. If the DHCP does not send an IP address for the standard gateway, it is assumed that it is not required. If no standard gateway is to be used, the (invalid) IP Address <b>0.0.0.0</b> is to be entered.</p>	
<p><i>Parameter for the UDP time server</i></p>	
IP Address of time server / 1. Byte	<b>0</b>
IP Address of time server / 2. Byte	<b>0</b>
IP Address of time server / 3. Byte	<b>0</b>
IP Address of time server / 4. Byte	<b>0</b>
<p>If the real-time clock of the MCG is to be synchronised with a central UDP time server according to RFC 868, it is necessary to enter the IP address of the time server here. If no time server is to be used, the (invalid) IP Address <b>0.0.0.0</b> is to be entered.</p>	
Time zone	(GMT-5:00) Eastern (USA/Canada) (GMT-6:00) Central (USA/Canada) (GMT-7:00) Mountain (USA/Canada) (GMT-8:00) Pazifik (USA/Canada) <b>(GMT+1:00) Brussels, Berlin, Rome, Stockholm, Vienna, etc.</b>
<p>The parameter <i>Time Zone</i> adjusts the date and time signal received from the UDP time server to the local time. Some of the possible settings are shown above.</p>	
Daylight saving time automatic	<b>Active</b> , inactive
<p>This parameter determines whether the real time clock is to switch automatically from summer to winter daylight saving time.</p>	
Interval for cyclical sending (EIB)	1 Min 2 Min 5 Min 10 Min <b>30 Min</b> 1 h 2 h 4 h 8 h 12 h 24 h
<p>This parameter sets the interval between two EIB date and time telegrams sent by the MCG.</p>	

Parameter for the object definition	
Parameter	Settings
Data type	<b>1 bit (EIS1)</b> 1 Byte unsigned (EIS14) 1 Byte signed (EIS 14) 2 Byte unsigned (EIS10) 2 Byte signed (EIS 10) 2 Byte float (EIS 5) 4 Byte unsigned (EIS11) 4 Byte signed (EIS 11) 4 Byte float (EIS 9)
<p>This determines the data type of the communication object. This parameter setting can be performed for all 80 communication objects.</p>	

Parameter for special functions on High Access	
Parameter	Settings
Send read requests to update object values after restart	<b>Yes</b> No
<p>This determines whether the current values of all 80 objects are to be polled once the MCG is started up.</p>	
Communication Timeout	1 s 5 s 10 s <b>20 s</b> 30 s 60 s
<p>This parameter defines the timeout interval of an IP communication. After the timeout elapses, the connection with the IP client is terminated automatically.</p>	
DHCP Timeout	5 s 30 s <b>1 min</b> 2 min
<p>This determines the time interval after which the DHCP server is declared dead and a fixed IP is used instead.</p>	
Update rate for time server	1 Min 2 Min 5 Min 10 Min 30 Min <b>1 h</b> 2 h 4 h 8 h 12 h 24 h
<p>This determines the cycle time for requesting current date and time from the UDP time server.</p>	

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### Week Switch Programs

Within the week switch programs up to 80 objects and a maximum of 100 time switch commands can be defined. Up to 8 periods are available (see period function). Period 0 is pre-set as the active period. All time switch commands within this period are executed. A time switch command consists of the following:

- Object which is to be switched
- Time
- Day of the week
- Activated or de-activated
- Post-processing

The astronomic calendar can be activated for a time switch command if desired. The time of the execution is then defined in relation to the time of sunrise and sunset (+/- 1:59 min.). It is necessary for this function to enter the location (see settings function). If it is necessary to switch more than one object at a time, it is possible to load a scene. The scene must have been defined prior to this. (see Event Switch Programs / Scenes)

### Period setting

It is possible to define up to 8 periods. If no period has been defined, period 0 is automatically activated and all time switch commands are executed within this period. A period is only defined by the start point, i.e. it becomes active on a certain date and only time switch commands within this period are executed. In order to terminate a period, a new period has to be started. Example:

- Principal settings in period 0
- Easter holidays in period 1
- Summer holidays in period 2

### Calendar entries

A calendar entry defines time switch commands on a certain day in the calendar. As soon as a calendar entry has been defined for this day, the respective week switch program is de-activated.

### Event Switch Programs / Scenes

Each scene contains a list of switch commands that are executed in sequence. The scenes could therefore be defined as instruction lists.

Possible switch commands are:

- Settings and Sending of a communication object
- Setting of a waiting interval
- Setting of a memory object

### Communication object:

It is possible to set binary and byte values depending on the data type.

### Waiting interval:

The waiting interval can be set to last from 1 to 64000 seconds.

### Memory object:

Possible values are TRUE or FALSE. Setting a memory object is an event that can be used in logic gates.

### Event Triggers

An event trigger can be defined as the starting signal for a further action. A further action can be the setting of a memory object or the start of an event switch program (scene). An event is triggered when a given object is compared to a defined value, and the result of the comparison is TRUE.

### Trigger objects:

All 80 communication objects are available to define event triggers.

### Trigger conditions:

The following conditions are valid:

- On every entry signal
- Equal (each time)
- Smaller (each time)
- Greater (each time)
- Equal (first time)
- Smaller (first time)
- Greater (first time)

Selecting „each time“ will trigger the event for every input signal where the condition is true. Selecting „first time“ will only trigger the first time the condition is true. Any subsequent signal where this condition is still true will be ignored. If subsequently the condition is FALSE and then TRUE again, the event is triggered again.

### Comparison Value:

The possible values depend on the object type. For analogue values, the comparative value can also be analogue.

### Action:

The number of an event switch program (scene) or the number of a memory object can be entered here. Scenes are triggered immediately. Memory objects can be fed into a logic gate. When a memory object is set, the logic gate recalculates the output.

### Trigger values on initial start up of the MCG:

During the initialisation process of the MCG the internal memory is reset. Therefore all communication object values should first be read in. Make sure to set the parameter „send read requests to update object values after restart“ correctly (this is the default configuration of the device). This then has the effect that all trigger conditions are verified at start up of the MCG and subsequent actions executed if the trigger conditions are met.

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### Logic Gates

Each gate is able to process up to 4 input signals. If the input is not required, it can be left blank. The same is true for outputs that are not required. 4 outputs are available:

#### Output Y:

This output is reserved for memory objects that are used in further logic gates. It is thus possible to chain several logic gates.

#### Output Z:

This output sets a binary communication object to the result of the logic operation and sends it to the bus according to the sending condition of the gate.

#### Output Q:

This output triggers an event switch program (scene) if the result of the logic operation is TRUE.

#### Output Q~:

This output triggers an event switch program (scene) if the result of the logic operation is FALSE.

If a program is to be started regardless of the logic operation's result, it is possible to connect the same event switch program number to both Q and Q~.

The sending condition is set for each gate. Two options are available:

- When output changes:  
Send the calculated output value only when it has changed
- On each input signal:  
The defined actions are performed for each input signal, even if the result of the logic operation is the same as before.

#### Logic Values on initial start up of the MCG:

During the initialisation process of the MCG the internal memory is reset. This has the following effect depending on the selected sending conditions of the gates:

#### Sending Condition: when output changes

If the logic operation after initialisation returns TRUE, the output actions are performed.

If the logic operation after initialisation returns FALSE, the output actions are NOT performed.

#### Sending Condition: on each input signal

The initialisation process is interpreted as an input event, under the condition that the parameter „send read requests to update object values after restart“ is set (default configuration of the device). All actions are therefore directly performed after the initialisation.

### Examples:

The following examples should illustrate the way the logic gates work. The following parameter settings are presumed:

- All 4 inputs are linked to objects
- The logic gate is defined as an AND function
- The output Y is linked to a memory object #1
- The output Z is linked to object #1
- The event switch program on output 1 is Scene #2
- The event switch program on output 0 is Scene #3

#### Example A:

The sending condition is defined as „when output changes“

Status on T = T0		Output Value	
A=0	<b>AND / OR</b> Sending condition: a.) <b>when output changes</b> b.) on the input signal	Y = Mem Obj. #1	0
B=1		Z = Object #1	0
C=1		Q = Scene #2	-
D=1		QN~ = Scene #3	X

The logical operation AND with the inputs as shown above will result as 0 (FALSE). For this reason the memory object 1 is set to 0, the communication object #1 as well and sent to the bus, and scene #3 (on output QN) is triggered.

Status on T = T1		Output Value	
A=1	<b>AND / OR</b>	Y = Mem Obj. #1	0
B=1		Z = Object #1	0
C=1		Q = Scene #2	X
D=1		QN~ = Scene #3	-

The input A has changed to 1. The result is 1 (TRUE). Therefore memory object 1 is set to 1, communication object 1 to 1 and sent to the bus, and scene #2 (output Q) is triggered.

Status on T = T2		Output Value	
A=1	<b>AND / OR</b> Sending condition: a.) <b>when output changes</b> b.) on each input signal	Y = Mem Obj. #1	0
B=1		Z = Object #1	0
C=1		Q = Scene #2	X
D=1		QN~ = Scene #3	-

A gets another input signal = 1. The result of the logic operation is the same as before. The outputs still have the value 1, but are not sent again, and the scenes are not triggered.



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### Example B:

The sending condition is set to „on each input signal“

Status on T = T2		Output Value	
A=0	<b>AND / OR</b>	Y = Mem Obj. #1	0
B=1	Sending condition:	Z = Object #1	0
C=1	a.) when output changes	Q = Scene #2	-
D=1	b.) <b>on each input signal</b>	QN~ = Scene #3	X

The logic operation results in 0 (FALSE). For this reason the memory object 1 is set to 0, the communication object #1 as well and sent to the bus, and scene #3 (on output QN) is triggered.

Status on T = T1		Output Value	
A=1	<b>AND / OR</b>	Y = Mem Obj. #1	1
B=1	Sending condition:	Z = Object #1	1
C=1	a.) when output changes	Q = Scene #2	X
D=1	b.) <b>on each input signal</b>	QN~ = Scene #3	-

The input A has changed to 1. The result is 1 (TRUE). Therefore memory object 1 is set to 1, communication object 1 to 1 and sent to the bus, and scene #2 (output Q) is triggered.

Status on T = T2		Output Value	
A=1	<b>AND / OR</b>	Y = Mem Obj. #1	1
B=1	Sending condition:	Z = Object #1	1
C=1	a.) when output changes	Q = Scene #2	X
D=1	b.) <b>on each input signal</b>	QN~ = Scene #3	-

Assuming that input A gets another input signal=1, the output values of the memory object and of the communication object are set to 1 and sent again, and scene 2 is triggered once more.

### Properties

Within Properties three information groups are visible

- Location
- Network
- Boarder values

The location defines the time zone, longitude, latitude (e.g. by means of pre-set locations) as well as the changes to summer/winter time.

These settings can be edited and the edited settings loaded on the device.

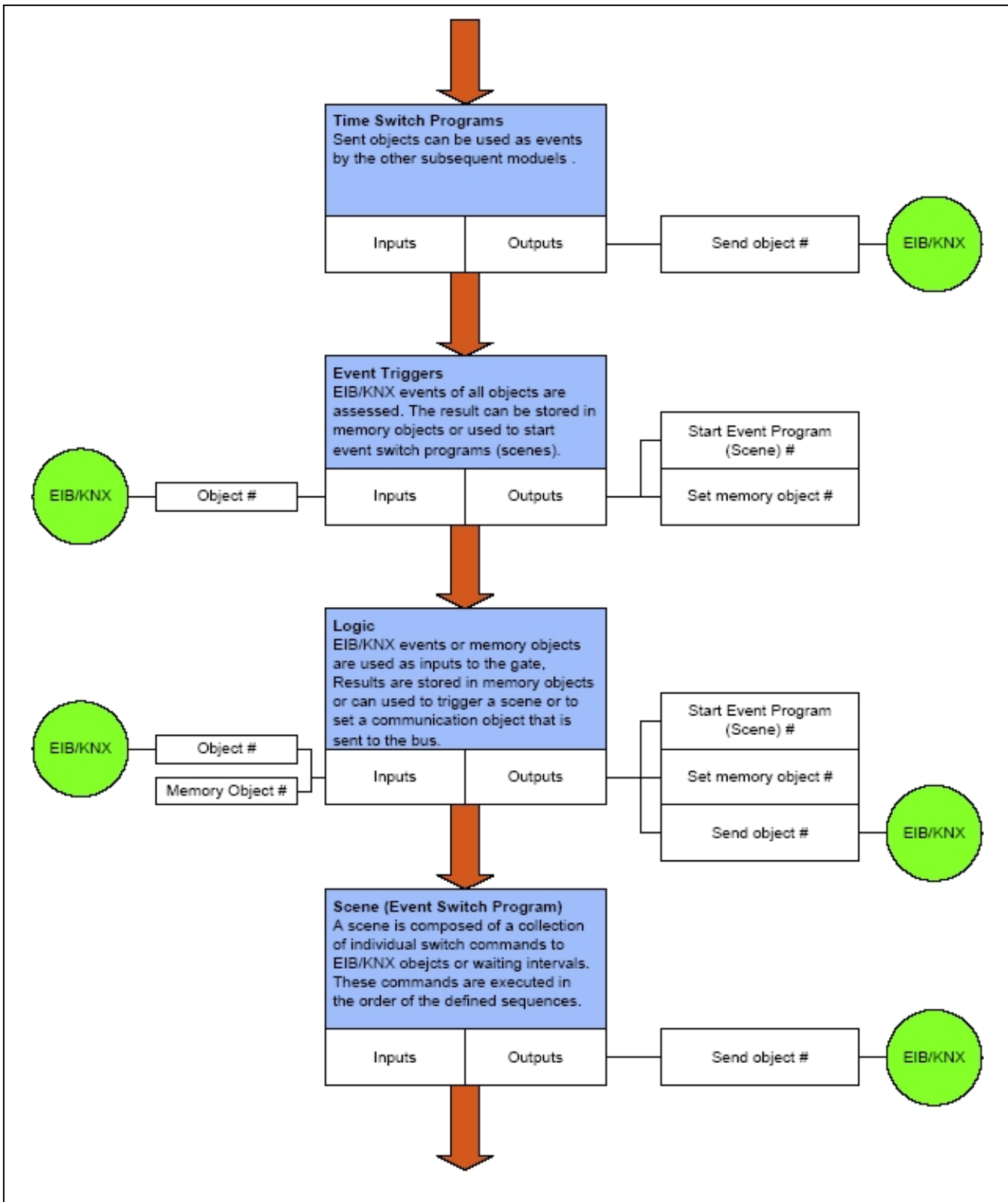
The information groups network and boarder values are only information displays and cannot be changed.

Within the network information, IP addresses, sub net masks and KNX individual address are displayed amongst others

Within the boarder values, the maximum values of the individual application modules are displayed.

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**Program Sequence**



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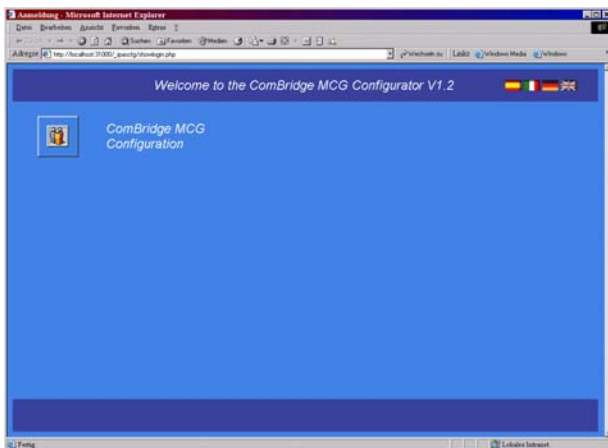
### Configuration Software

The configuration software allows to set the ComBridge MCG functions time and event switch programs, event triggers and the logic gates via an IP network connection over ethernet.

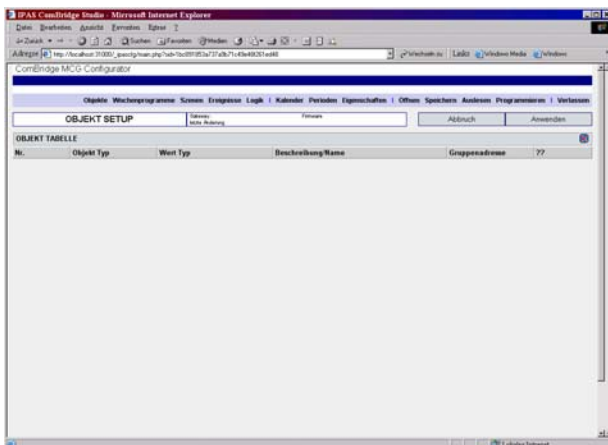
The ComBridge MCG package contains a credit card size CDROM that features the setup files for the configuration software.

First start the setup "WebServerInstallation.exe". This will install the Apache Web-Server on your computer. You require administrator rights on your Windows operating system.

In a second step, it is necessary to install the configuration program "Setup\_IPAS\_MCG\_Configurator\_10000.exe". This setup will create a shortcut under Start→Program Files →ComBridge Studio→CBS MCG Configurator to the setup pages, which leads to the following start screen:



The configuration surface is currently offered in four languages. To choose the desired language select the corresponding flag. To begin, click on the picture.



The configuration menu of the MCG is now active.

Follow these steps when first configuring a ComBridge MCG:

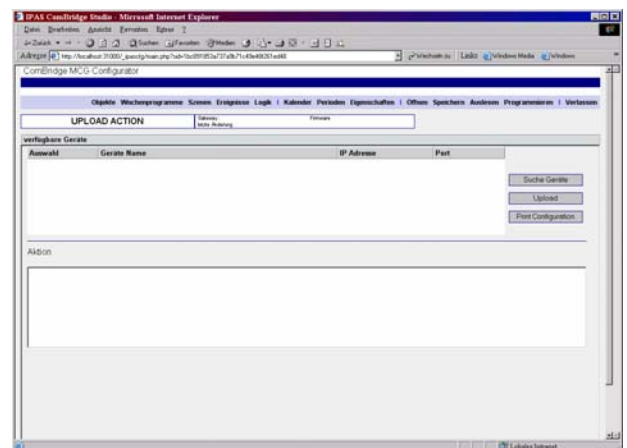
- Upload the Device Content (UPLOAD)
- Enter meaningful Object Names for objects 1...80 (OBJECTS)
- Enter time switch programs (SHEDULES)
- Enter event switch programs (SCENES)
- Enter event triggers (EVENTS)
- Enter logic gates (LOGIC)
- Save settings to the local hard disc (SAVE)
- Download the settings to the device (DOWNLOAD)

If you are using a ComBridge MCG that has already been programmed, it is possible to modify the configuration without having any connection to the gateway. The steps are slightly different:

- Load the previously saved MCG settings from the local hard disc drive (LOAD)
- Modify object name (OBJECTS)
- Modify schedules (SCHEDULES)
- Modify scenes (SCENES)
- Modify event trigger (EVENTS)
- Modify logic functions (LOGIC)
- Save settings to the local hard disc (SAVE)
- Download the settings to the device (DOWNLOAD)

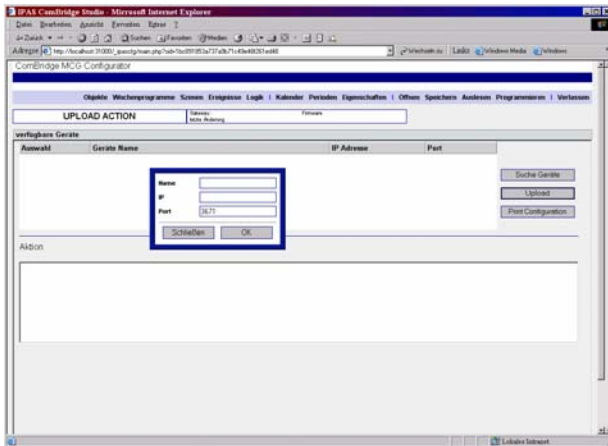
### Uploading the device content (UPLOAD)

Click on UPLOAD to open the following screen:



By clicking on "Search Devices" the software will list all MCG Gateways that it finds in the network. It is now possible to select a device from the list and to click on the button "Upload" to start reading the device content. If you forgot to select a device from the list or if the device was not found, you will be prompted to enter the IP address of the ComBridge MCG by hand.

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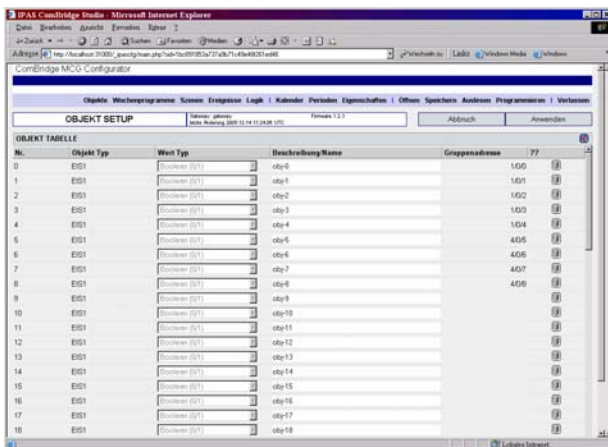


Depending on the network topology and transmission speed, the upload can take anything from one seconds to two minutes.

Once the upload finished, click on objects.

### Entering Object Names (OBJECTS)

Selecting the menu item „Objects“, a list with all objects that have previously been defined with ETS will appear.



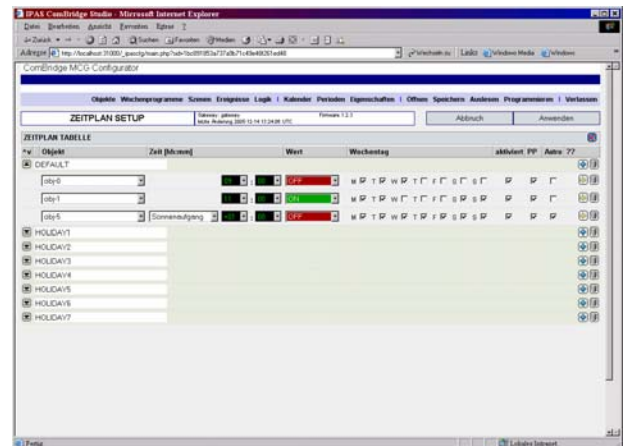
The list shows the current number (0...79), the object name, the data type and group address according to the settings performed with ETS. It is now possible to modify the object names in order to assign a more meaningful description to the object.

Modifications will only become active after clicking the APPLY button. CANCEL will discard all modification since the last APPLY.

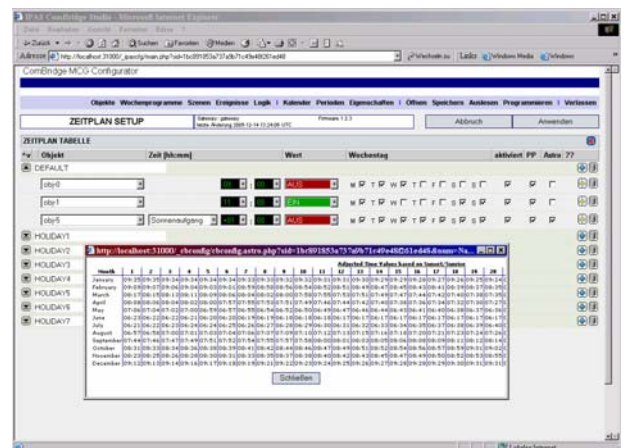
When leaving the page, the program will check whether any modifications have been made. If the APPLY button has not been pressed, it will prompt the user to check whether he wants to apply the changes before leaving the page or whether he wants to discard them.

### Entering time switch programs (SCHEDULES)

Click on schedules in order to enter time switch programs



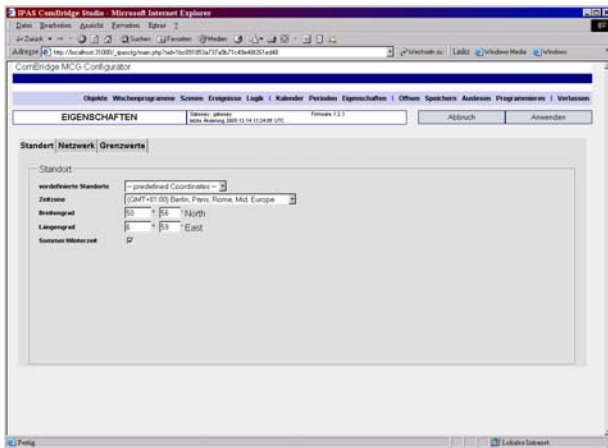
A list of individual time switch commands appears. Each line shows the object name, time in hours and minutes, the value, the days of the week it is active. Each switch command can be enabled ( enable) or disabled ( enable). By default it is enabled. Postprocessing can be optionally disabled. Postprocessing means that switch commands that have not been enabled during power outages are processed after the power returns. The astronomic calendar can also be activated ( enable). The time switch point is now longer defined as absolute but in relation to sunrise or sunset. A time period of + - 1.59 hours is available. An additional information screen can be opened to display the real switch time at sunset.



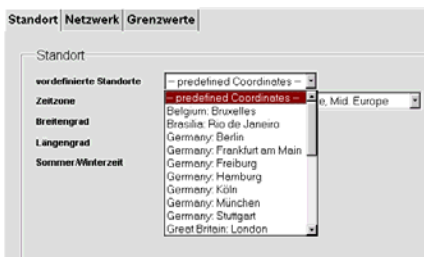
The sunrise time (with the relative offset, 1 hour in this example) is displayed according to location so that the user can see the actually calculated time switch points.

In order to calculate the sunrise and sunset time correctly, the location (longitude and latitude) needs to be defined. This important setting is defined under menu point "Properties -> "Location".

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For some locations these details have already been set in the system so that the location can be selected from the pre-defined location list.

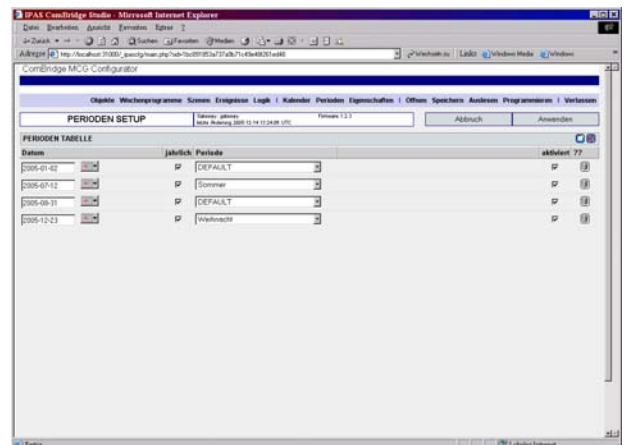


Only after pressing the APPLY button are the settings accepted and the sunrise and sunset time calculated.

Now you can continue entering the time switch commands. In principal the DEFAULT period is set as time switch program. However, several periods throughout the year can be defined in order to execute different time switch commands. The name of these periods can be changed. For example more meaningful terms such as summer or Christmas can be entered. For each period different time switch commands can be entered. However, the maximum number of entries is 100 and must not be exceeded.



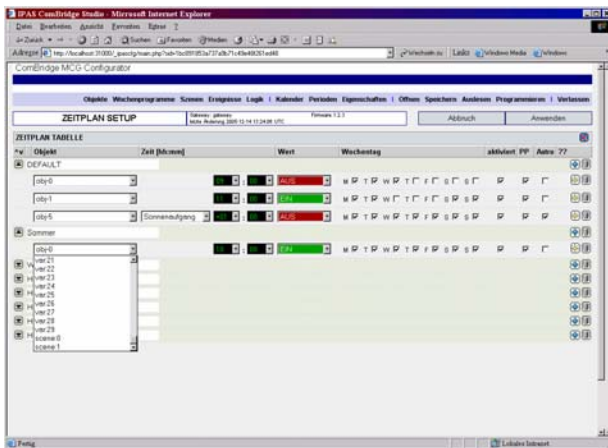
The period defines a certain time period of the year. This time period can be defined under menu point "Periods"




Only the start point of a period is defined. The current period ends when a new one is started. In the example above, three time periods are defined (DEFAULT, summer, Christmas).

Time switch programs can also switch previously defined scenes. If more than one object need to be switched or a sequence with interval is planned, the scene can be assigned to a time switch entry. However, the respective scene has to be defined under menu point "Scenes" first. Afterwards the scenes are available for selection.

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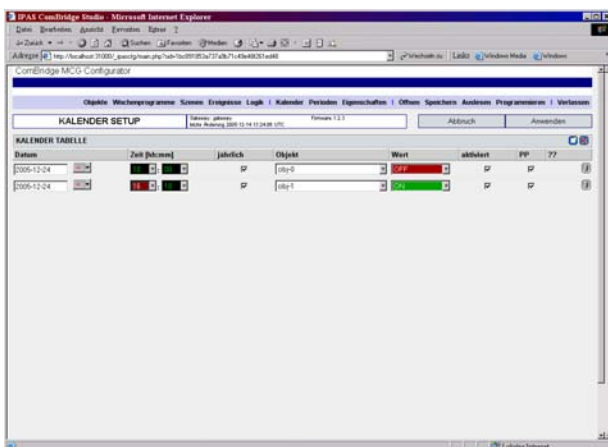
In the example two scenes have been defined which are now available for selection.

New time switch commands can be added by clicking the plus symbol . The entries are saved with the APPLY button.

Modifications have to be confirmed with APPLY. CANCEL rejects the last changes. Before leaving the page, the program will check whether modifications have been saved with APPLY. If this is not the case, the user will be prompted to save the changes. Otherwise all changes will be lost.

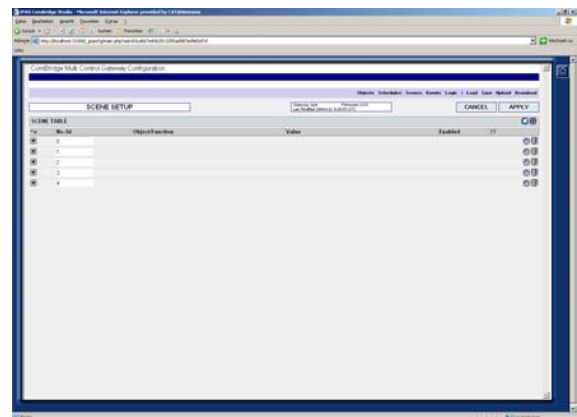
### Entering Calendar Programs

Within the calendar program different time switch commands for a certain day can be defined. These entries refer to a switch object and can be repeated every year. Please remember that calendar programs de-activate the time switch program for the week. As soon a command has been defined for a certain day in the calendar, all other commands for the week are de-activated.

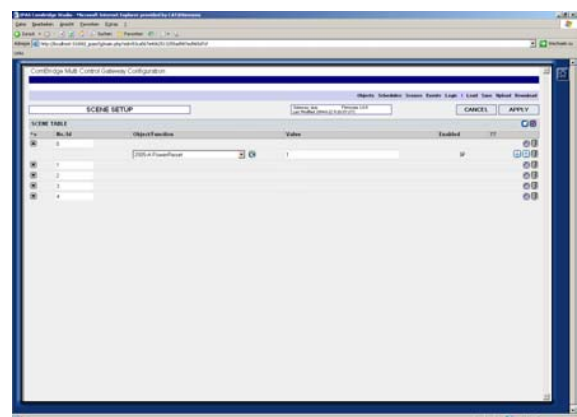


### Entering Event Switching Programs (SCENES)

Selecting the menu item SCENES will lead to the event switch program (Scenes) Setup screen. A list of all event switch programs appears.



By clicking on the symbol in the first column, the details of the corresponding event switching program will be displayed.



Each event switch command is shown with the communication object name, the object value and whether the command is enabled or disabled ( enable /  enable). Each Command of a program can be individually deleted (Symbol: Trash Can / Bin) or be moved before or after another switch command in the sequence (Up and Down Arrows). A new switch command is appended using the symbol next to the bin / trash can.

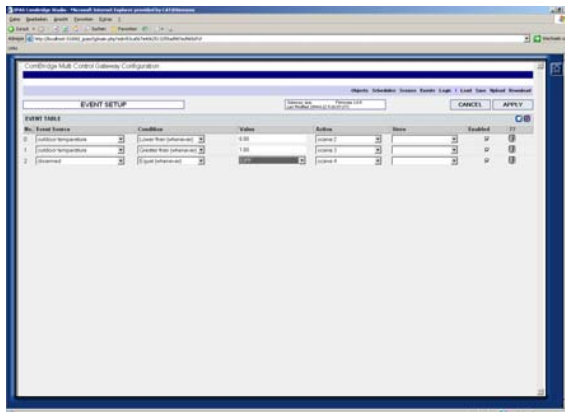
A new time switch program (scene) can be appended using the yellow box symbol beneath the APPLY button.

Modifications have to be confirmed with APPLY. CANCEL rejects the last changes. Before leaving the page, the program will check whether modifications have been made and will prompt the user whether he wants to APPLY the changes, or whether he wants to CANCEL them.

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### Entering Event Triggers (EVENTS)

Selecting the menu item EVENTS will lead to the Event Trigger Setup screen. A list of all event triggers appears.



Each trigger has an autoincremented number. Each line features the event source (object), the event condition, the comparative value as well as the number of the event switch program to run and the memory object, if desired. Each trigger can be enabled or disabled ( enable /  enable).

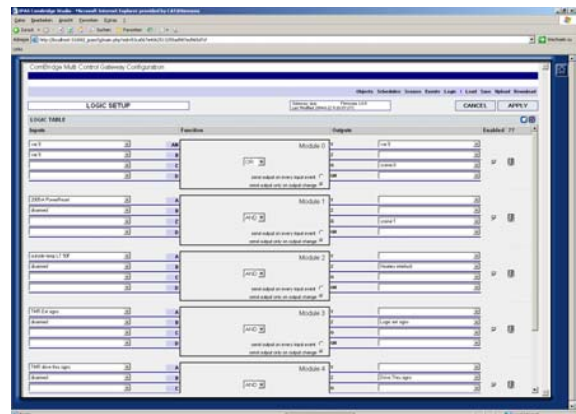
New triggers are appended by clicking on the yellow box symbol beneath the APPLY button. The trash can / bin is used to delete a trigger.

Modifications have to be applied with APPLY. CANCEL rejects the last changes.

Before leaving the page, the program will check whether modifications have been made and will prompt the user whether he wants to APPLY the changes, or whether he wants to CANCEL them.

### Entering Logic Gates (LOGIC)

The MCG supports OR and AND gatters. Selecting the menu item LOGIC will lead to the Logic Gate Setup screen, displaying the current configuration.



The logic gates have up to 4 inputs. An input can be a communication object or a memory object. Each input can be inverted.

If the logic operation is TRUE, the output action on Q is executed. Is it FALSE, the output action on QN is run. The output Y allows to store the result in a memory object. This allows to chain several logic gates. The output Z allows to directly switch a communication object on the bus, the result of the logic operation is its new value.

A new logic gate is appended by clicking on the yellow box symbol beneath the APPLY button. The trash can / bin is used to delete a trigger.

Modifications have to be applied with APPLY. CANCEL rejects the last changes. Before leaving the page, the program will check whether modifications have been made and will prompt the user whether he wants to APPLY the changes, or whether he wants to CANCEL them.

### Saving all applications to Disk (SAVE)

The menu item SAVE allows to write the application configuration to the local disk. Enter a meaningful filename that allows you to recognize the application, and make sure to type in its ".xml" extension. The output file is readable text in XML format.

### Writing the Application to the MCG Gateway (DOWNLOAD)

The menu item DOWNLOAD allows to send the application to one or more MCG devices at the same time. Either select Search Devices first or go directly to Download. In the second case, it is necessary to manually enter the IP address of the target MCG device.

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### Resetting Device

By pressing the combination of „Move“, „ESC“ and the EIB programming button, it is possible to reset the device to its original delivery state. The buttons „Move“ und „ESC“ have to be pressed down for longer than 5 s, followed by a push on the EIB programming button.

The device will restart, the programming LED will blink briefly and the display will go blank for a while.

#### Warning:

This procedure resets the ETS and the application program to its original state on delivery.

The original state on delivery is defined as follows:

#### IP-Address:

DHCP; if no DHCP server was found after 60 s, the device reverts to the fixed IP address 192.168.11.128. The device can therefore always be found and communicated with.

#### Phys. Address:

The physical address of the device is set to 15.15.255

All other settings and previously configured programs are deleted.

### FAQ

Communication errors with the web interface can occur if:

- The PC has more than one IP Address
- The PC is not connected to the network and does not have an IP address of its own.

Error Message:

Ok.  
Trying to connect "127.0.0.1" port 3012...

**Error 10060 A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has failed to respond.**

In this case the CBS Control Center needs to be opened and the services

- CBEIBnetIPService
- CBStudioMCGService

need to be restarted.